**Supplemental Materials**

Factors that Promote the Repulsion Effect in Preferential Choice

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Supplemental Table 1

*Extended Mixed Effects Logistic Regression Model in Experiment 2*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Fixed Effects () | Estimate | *SE* | *z* | *p* |
| Intercept | 0.40 | 0.21 | 1.93 | .054 |
| Decoy | 0.62 | 0.27 | 2.32 | .021 |
| Configuration | 0.02 | 0.26 | 0.07 | .94 |
| Low Dimension | −0.25 | 0.13 | −1.96 | .050 |
| Decoy × Configuration | −0.59 | 0.39 | −1.52 | .13 |
| Decoy × Low Dimension | −0.04 | 0.19 | −0.19 | .85 |
| Configuration × Low Dimension | 0.24 | 0.18 | 1.34 | .18 |
| Decoy × Configuration × Low Dimension | −0.54 | 0.27 | −2.03 | .042 |
|  |  |  |  |  |
| By-Subject Random Effects |  |  |  |  |
|  | 1.20 |  |  |  |
|  |  |  |  |  |
| By-Item Random Effects |  |  |  |  |
|  | 0.25 |  |  |  |
|  |  |  |  |  |

Note. Decoy was coded as 0 = absent, 1 = present. Configuration was coded as 0 = high dimension in second column, 1 = high dimension in first column. Low Dimension was coded as 0 = 30-40-10, 1 = 70-80-10. = random intercept standard deviation.

Supplemental Table 2

*Extended Mixed Effects Logistic Regression Model in Experiment 3*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Fixed Effects () | Estimate | *SE* | *z* | *p* |
| Intercept | 0.00 | 0.24 | 0.01 | .99 |
| Decoy | 0.18 | 0.30 | 0.58 | .56 |
| Configuration | −0.09 | 0.32 | −0.27 | .78 |
| High Dimension | 0.29 | 0.16 | 1.79 | .07 |
| Decoy × Configuration | −0.36 | 0.44 | −0.82 | .41 |
| Decoy × High Dimension | 0.18 | 0.22 | 0.83 | .41 |
| Configuration × High Dimension | −0.17 | 0.23 | −0.72 | .47 |
| Decoy × Configuration × High Dimension | 0.38 | 0.32 | 1.18 | .24 |
|  |  |  |  |  |
| By-Subject Random Effects |  |  |  |  |
|  | 1.27 |  |  |  |
|  | 0.43 |  |  |  |
|  | 0.16 |  |  |  |
|  |  |  |  |  |
| By-Item Random Effects |  |  |  |  |
|  | 0.26 |  |  |  |
|  |  |  |  |  |

Note. Decoy was coded as 0 = absent, 1 = present. Configuration was coded as 0 = high dimension in second column, 1 = high dimension in first column. High Dimension was coded as 0 = 70-60-70, 1 = 100-90-100. = random intercept standard deviation. = random slope standard deviation for the effect of High Dimension. = correlation between random effects.

Supplemental Table 3

*Extended Mixed Effects Logistic Regression Model in Experiment 4*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Fixed Effects () | Estimate | *SE* | *z* | *p* |
| Intercept | 0.10 | 0.18 | 0.54 | .59 |
| Decoy | 0.51 | 0.17 | 3.03 | .002 |
| Configuration | −0.01 | 0.17 | −0.05 | .96 |
| Low Dimension: linear | −0.36 | 0.07 | −5.33 | < .001 |
| Low Dimension: quad. | 0.15 | 0.07 | 2.34 | .019 |
| Low Dimension: cubic | −0.05 | 0.07 | −0.82 | .41 |
| Decoy × Configuration | 0.06 | 0.17 | 0.34 | .73 |
| Decoy × Low Dimension: linear | −0.18 | 0.07 | −2.76 | .006 |
| Decoy × Low Dimension: quad. | −0.08 | 0.07 | −1.20 | .23 |
| Decoy × Low Dimension: cubic | −0.01 | 0.07 | −0.12 | .90 |
| Config. × Low Dimension: linear | −0.03 | 0.07 | −0.50 | .62 |
| Config. × Low Dimension: quad. | −0.09 | 0.07 | −1.33 | .18 |
| Config. × Low Dimension: cubic | −0.03 | 0.07 | −0.43 | .67 |
| Decoy × Config. × Low Dimension: linear | 0.08 | 0.07 | 1.26 | .21 |
| Decoy × Config. × Low Dimension: quad. | −0.01 | 0.07 | −0.15 | .88 |
| Decoy × Config. × Low Dimension: cubic | −0.11 | 0.07 | −1.68 | .09 |
|  |  |  |  |  |
| By-Subject Random Effects |  |  |  |  |
|  | 1.77 |  |  |  |
|  |  |  |  |  |
| By-Item Random Effects |  |  |  |  |
|  | 0.24 |  |  |  |
|  |  |  |  |  |

Note. Decoy was coded as −1 = absent, 1 = present. Configuration was coded as −1 = high dimension in second column, 1 = high dimension in first column. Low Dimension (4 levels: 30-40-10, 40-50-10, 50-60-10, 60-70-10) was coded using linear, quadratic, and cubic polynomial contrasts. = random intercept standard deviation.

Supplemental Table 4

*Extended Mixed Effects Logistic Regression Model in Experiment 5*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Fixed Effects () | Estimate | *SE* | *z* | *p* |
| Intercept | 0.13 | 0.14 | 0.90 | .37 |
| Decoy | 0.29 | 0.14 | 2.13 | .033 |
| Configuration | −0.34 | 0.14 | −2.42 | .015 |
| High Dimension: linear | 0.07 | 0.07 | 1.10 | .27 |
| High Dimension: quad. | −0.22 | 0.07 | −3.39 | < .001 |
| High Dimension: cubic | −0.15 | 0.07 | −2.29 | .022 |
| Decoy × Configuration | −0.03 | 0.14 | −0.24 | .81 |
| Decoy × High Dimension: linear | 0.25 | 0.07 | 3.75 | < .001 |
| Decoy × High Dimension: quad. | −0.09 | 0.07 | −1.38 | .17 |
| Decoy × High Dimension: cubic | −0.08 | 0.07 | −1.17 | .24 |
| Config. × High Dimension: linear | 0.24 | 0.07 | 3.63 | < .001 |
| Config. × High Dimension: quad. | 0.08 | 0.07 | 1.24 | .22 |
| Config. × High Dimension: cubic | −0.02 | 0.07 | −0.31 | .75 |
| Decoy × Config. × High Dimension: linear | −0.03 | 0.07 | −0.53 | .60 |
| Decoy × Config. × High Dimension: quad. | 0.05 | 0.07 | 0.72 | .47 |
| Decoy × Config. × High Dimension: cubic | −0.05 | 0.07 | −0.69 | .49 |
|  |  |  |  |  |
| By-Subject Random Effects |  |  |  |  |
|  | 1.45 |  |  |  |
|  |  |  |  |  |

Note. Decoy was coded as −1 = absent, 1 = present. Configuration was coded as −1 = high dimension in second column, 1 = high dimension in first column. High Dimension (4 levels: 70-60-70, 80-70-80, 90-80-90, 100-90-100) was coded using linear, quadratic, and cubic polynomial contrasts. = random intercept standard deviation.

Chart

Description automatically generated

**Supplemental Figure 1**. Results of an alternate version of Experiment 4. In this experiment, the decoy’s low value was fixed at 25 instead of 10. The plot shows the relative choice share of the competitor as a function of decoy (absent or present) and the locations of the target (T), competitor (C), and decoy (D) in attribute space. Decoy selections were excluded. The relative choice shares for each product category are shown, along with the averages across products (bars). The data are collapsed across individuals (*n* = 146). The percentages show the change in the competitor’s choice share with the introduction of the decoy. Negative numbers indicate an attraction effect. There was no overall effect of decoy, and no interaction with decoy-target similarity (*p*s > 0.42).